

REMARKS

Applicants express their appreciation to the Examiner for her careful examination and most helpful comments.

As noted, supra, claim 1 has been replaced with new claim 11, which includes additional limitations, and which more clearly describes the invention and distinguishes over the art of record.

In addition, the ambiguity in claim 4 has been eliminated.

In regard to the above objection to the title, the Applicants respectfully submit that the present title is “Gel Electrolyte Secondary Cell”, and claim 11, as amended, includes the following prefix “A gel electrolyte secondary cell comprising” (Emphasis added). Accordingly, it is respectfully submitted that the present title of the invention is in fact “descriptive”, and the present title of the invention is also “clearly indicative of the invention to which the claims are directed”. (Emphasis added).

In regard to claim 4, it is respectfully submitted that the above ambiguity has been fully remedied and the claim has been best amended to be consistent with the Specification, (at page 14, line 12).

In regard to the new independent claim 11, that claim is directed to a gel electrolyte secondary cell, which comprises the elements of:

- a) a positive electrode;
- b) a negative electrode,
- c) gel electrolyte, and
- d) propylene carbonate,
- e) wherein said negative electrode contains a graphitized carbonaceous material

obtained by firing meso-carbone micro beads.

The above rejections for anticipation set forth in the Official Action at paragraphs 5 and 6 thereof, and citing respectively the Akashi reference and the Nakane et al. reference, are overcome by said new claim 11. Specifically, neither reference teaches or suggests the material element of “a graphitized carbonaceous material obtained by firing meso carbone micro beads.

Applicants have respectfully reviewed the Examiner’s comments and the legal authority cited by the Examiner. However, it must be pointed out that comparative testing is already of record here, and specifically as set forth in the Specification, pages 23-24, and which states:

“If the cells of the Examples 3 and 4 employing powders of the graphitized carbonaceous material, obtained on firing meso-carbon micro-beads, as shown in Table 2, as the negative electrode material, are compared to the cell of the Comparative Example 2 employing powders of the graphitized carbonaceous material as the negative electrode material, obtained on firing petroleum coke, it is seen that the cells of the Examples 3 and 4 give a charging/discharging efficiency higher than that of the cell of the Comparative Example 2 for the same discharging capacity.”

Accordingly, Applicants’ Specification establishes that the graphitized carbonaceous material of the negative electrode in the present invention (i.e., obtained by firing meso-carbon micro-beads) is materially different from, and patentably distinguishable over, the graphitized carbonaceous material formed by other means in the prior art.

Finally, inasmuch as neither Akashi or Nakane et al. teaches production of graphitized carbonaceous material obtained by firing meso-carbon micro-beads, the proposed rejections under Akashi and Nakane et al. cannot stand.

In regard to the remaining rejections, (set forth in paragraphs 7, 8 and 9 of the Official

Action, it should further be noted that each of those rejections includes a combination including U.S. Patent No. 5,522,127 to Ozaki et al.

To reiterate, claim 11 hereof states as follows:

“A gel electrolyte secondary cell comprising:

a positive electrode,

a negative electrode,

gel electrolyte, and

propylene carbonate,

wherein said negative electrode contains a graphitized carbonaceous material obtained by firing meso-carbone-micro-beads.” (Emphasis added)

The Ozaki et al. patent teaches as follows at column 7, lines 5-16

“As for the organic solvent of the organic electrolyte for the non-aqueous electrolyte, propylene carbonate (PC) is not employed, because it decomposes to generate a gas [at] during charging. On the other hand, ethylene carbonate (EC) used alone is not suitable, since it has a high melting temperature and is solid at ordinary temperature though it has no unfavorable side reaction, as of PC. However, EC may be used in a mixed solvent of EC and either ether such as 1,2 dimethoxyethane, chain carbonate such as diethyl carbonate, ethyl methyl carbonate, or aliphatic-carboxylic acid ester such as methyl propionate, which are of low melting temperature and of low viscosity. (Emphasis added)

Accordingly, the Ozaki et al. reference teaches firmly against the use of propylene carbonate - - i.e., which “is not employed”. However, each of the claims of the present invention is specifically directed to use of such rejected “propylene carbonate”.

The proposed combination of Akashi with the Ozaki et al references fares no better. The Akashi reference does not teach the production of graphitized carbonaceous material from the firing of meso-carbone micro-beads, but does teach the use of propylene carbonate


(see page 5, line 29). Accordingly, one skilled in the art would not combine the Ozaki teaching (which teaches that "propylene carbonate is not employed") with the Akashi teaching which specifically teaches the use of "propylene carbonate". Specifically, these references directly teach exclusion of each other by those skilled in the art. Likewise, the Nakane et al reference teaches the use of propylene carbonate (see column 7, line 32). Accordingly, Nakane et al. likewise would not be combined by those of ordinary skill with Ozaki et al. patent (which teaches that propylene carbonate is not to be used).

The Applicant has thus addressed each of the rejections outstanding, and has demonstrated the distinguishment of each of the presently pending claims 2-11 thereover.

CONCLUSION

Based upon the above amendments and remarks, it is respectfully submitted that pending claims 2-11 are now in condition for allowance, and a Notice of Allowance is respectfully solicited.

Respectfully submitted,


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